

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of	:	Conf. No.: 5261
	:	
Joon-Young JUNG et al.	:	
	:	
Serial No. 10/029,943	:	Group Art Unit: 2623
	:	
Filed: December 31, 2001	:	Examiner: Nnenna Ngozi Ekpo
	:	

For: PSIP CONVERTER AND CONVERTING METHOD AND DIGITAL CABLE  
TELEVISION BROADCASTING SYSTEM USING THE PSIP CONVERTER

**Mail Stop Appeal Brief - Patents**  
Commissioner for Patents  
U.S. Patents and Trademarks Office

Attn: BOARD OF PATENT APPEALS AND INTERFERENCES

**APPELLANT'S BRIEF UNDER 37 C.F.R. § 41.37(c)**

This brief is in furtherance of the Notice of Appeal, filed in this case on July 28, 2009.

The fees required under § 41.20 and any required petition for extension of time for filing this brief and fees therefore, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

Only one copy of this brief is required under § 41.37.

This brief contains these items under the following headings, and in the order set forth below (*37 C.F.R. § 41.37(c)*):

- I. Real Party in Interest.
- II. Related Appeals and Interferences.
- III. Status of Claims.
- IV. Status of Amendments.
- V. Summary of Claimed Subject Matter.
- VI. Grounds of Rejection to be Reviewed on Appeal.
- VII. Argument.
- VIII. Claims Appendix.
- IX. Evidence Appendix.
- X. Related Proceedings Appendix.

The final page of this brief bears the attorney's signature.

**I. REAL PARTY IN INTEREST**

The real party in interest in this appeal is **Electronics and Telecommunications Research Institute** of 161 Gajeong-dong, Yuseong-ku, Daejeon-city, Korea 305-350.

## **II. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

### **III. STATUS OF CLAIMS**

#### **A. Total Number of Claims in Application**

There is a total of 12 claims in the application, which are identified as claims 2-13.

#### **B. Status of all the claims**

1. Claims cancelled: claim 1
2. Claims withdrawn from consideration but not cancelled: none
3. Claims pending: claims 2-13
4. Claims allowed: none
5. Claims rejected: claims 2-13

#### **C. Claims on Appeal**

Claims on appeal are claims **2-5 and 9-13**<sup>1</sup> as rejected by the Final Office Action of April 29, 2009.

---

<sup>1</sup> Claims 6-8 are hereby withdrawn from appeal.

**IV. STATUS OF AMENDMENTS**

No Amendment was filed in response to the Final Office Action.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

For the purpose of this appeal brief only, the claimed subject matter will be explained herein below with references to the specification by page and line number, and to the drawings by reference characters.

The invention of **independent claim 3** is directed to a program and system information protocol (PSIP) converter<sup>2</sup> for selectively receiving a digital terrestrial broadcasting transport stream (TS)<sup>3</sup> or a digital satellite broadcasting TS,<sup>4</sup> converting them into a corresponding digital cable broadcasting TS,<sup>5</sup> and outputting the same, said PSIP converter<sup>6</sup> comprising:

a protocol data extractor<sup>7</sup> for demultiplexing the terrestrial broadcasting TS or the satellite broadcasting TS, extracting audio/video (A/V) data<sup>8</sup> and PSIP/PSI (program specific information) data<sup>9</sup> from the terrestrial broadcasting TS, and extracting A/V data<sup>10</sup> and SI (system information)/PSI data from the satellite broadcasting TS;<sup>11</sup>

a protocol data converter<sup>12</sup> for converting the PSIP/PSI data or the SI/PSI data extracted by the protocol data extractor into PSIP/PSI data of a corresponding digital cable television broadcasting standard;<sup>13</sup>

a protocol data inserter<sup>14</sup> for inserting the digital cable television broadcasting standard PSIP/PSI data generated by the protocol data converter into the A/V data extracted by the

---

<sup>2</sup> FIG. 1, at 200-210-220-230.

<sup>3</sup> FIG. 1, from 20.

<sup>4</sup> FIG. 1, from 10.

<sup>5</sup> FIG. 1, after 500.

<sup>6</sup> FIG. 2.

<sup>7</sup> FIG. 2, at 202.

<sup>8</sup> FIG. 2, at "A/V data" after 202.

<sup>9</sup> FIG. 2, at arrow from 202 to 203.

<sup>10</sup> FIG. 2, at "A/V data" after 202.

<sup>11</sup> FIG. 2, at arrow from 202 to 203, page 10, lines 5-8.

<sup>12</sup> FIG. 2, at 203.

<sup>13</sup> Page 10, lines 8-11.

<sup>14</sup> FIG. 2, at 204.

protocol data extractor through TS multiplexing, and generating a digital cable broadcasting TS;<sup>15</sup> and

a system controller<sup>16</sup> for checking states of the protocol data extractor, the protocol data converter and the protocol data inserter, and controlling their operation;<sup>17</sup>

wherein the protocol data converter<sup>18</sup> comprises:

a table data manager<sup>19</sup> for receiving the terrestrial broadcasting PSIP/PSI data or the satellite broadcasting SI/PSI data from the protocol data extractor,<sup>20</sup> splitting them according to tables corresponding to the PSIP or the SI and the PSI, and extracting data for generating digital cable broadcasting PSIP/PSI tables;<sup>21</sup>

a common protocol data manager<sup>22</sup> for using the data extracted by the table data manager,<sup>23</sup> a data input by a system manager through an user interface,<sup>24</sup> and data stored in a database<sup>25</sup> to configure data needed for generating the digital cable broadcasting PSIP/PSI tables;<sup>26</sup>

a scheduler<sup>27</sup> for outputting control signals corresponding to each table generation period of the digital cable broadcasting PSIP/PSI;<sup>28</sup> and

a PSIP/PSI table generator<sup>29</sup> for generating the digital cable broadcasting PSIP/PSI tables by using the data input by the common protocol data manager<sup>30</sup> according to the control signals outputted by the scheduler,<sup>31</sup> and outputting the same to the protocol data inserter.<sup>32</sup>

---

<sup>15</sup> Page 10, lines 15-17.

<sup>16</sup> FIG. 2, at 207.

<sup>17</sup> Page 10, lines 20-21.

<sup>18</sup> FIG. 4.

<sup>19</sup> FIG. 4, at 2032.

<sup>20</sup> FIG. 2, at 202.

<sup>21</sup> Page 14, lines 9-13.

<sup>22</sup> FIG. 4, at 2033.

<sup>23</sup> FIG. 4, at 2032.

<sup>24</sup> FIG. 4, at 206.

<sup>25</sup> FIG. 4, at 2035.

<sup>26</sup> Page 14, lines 14-18.

<sup>27</sup> FIG. 4, at 2036.

<sup>28</sup> Page 14, lines 20-21.

<sup>29</sup> FIG. 4, at 2037.



The invention of **independent claim 9** is directed to a digital cable television broadcasting system<sup>33</sup> for selectively receiving digital terrestrial broadcasting<sup>34</sup> or digital satellite television broadcasting signals<sup>35</sup> and linking the selectively received signals to a digital cable broadcasting network<sup>36</sup> in real-time, said system comprising:

a plurality of first and second broadcasting signal demodulators<sup>37</sup> for demodulating the digital terrestrial broadcasting signals and the digital satellite television broadcasting signals, respectively, and outputting the demodulated signals in terrestrial broadcasting transport streams (TS) and satellite broadcasting TS, respectively;<sup>38</sup>

a plurality of first and second program and system information protocol (PSIP) converters<sup>39</sup> for analyzing the terrestrial broadcasting TS and the satellite broadcasting TS outputted by the broadcasting signal demodulators, respectively, converting a terrestrial broadcasting PSIP/PSI table and a satellite television broadcasting SI/PSI table extracted from the analyzed TS into digital cable broadcasting PSIP/PSI tables, respectively, and outputting a cable broadcasting TS based on the digital cable broadcasting PSIP/PSI tables;<sup>40</sup>

a plurality of broadcasting signal modulators<sup>41</sup> for modulating the cable broadcasting TS outputted by the PSIP converters;<sup>42</sup>

a plurality of up-converters<sup>43</sup> for up-converting the cable broadcasting TS modulated by the broadcasting signal modulators into radio frequency (RF) signals;<sup>44</sup> and

---

<sup>30</sup> FIG. 4, at 2033.

<sup>31</sup> FIG. 4, at 2036.

<sup>32</sup> FIG. 2, at 204, FIG. 4, at 2038, and page 14, line 19 through page 15, line 3.

<sup>33</sup> FIG. 1.

<sup>34</sup> FIG. 1, from 20.

<sup>35</sup> FIG. 1, from 10.

<sup>36</sup> FIG. 1, after 500.

<sup>37</sup> FIG. 1, at 100-110-120-130.

<sup>38</sup> Page 7, lines 16-19.

<sup>39</sup> FIG. 1, at 200-210-220-230.

<sup>40</sup> Page 7, lines 21-24.

<sup>41</sup> FIG. 1, at 300-310-320-330.

<sup>42</sup> Page 8, lines 1-2.

<sup>43</sup> FIG. 1, at 400-410-420-430.

<sup>44</sup> Page 8, lines 3-5.

a mixer<sup>45</sup> for mixing the cable broadcasting TS up-converted by the up-converters, and transmitting the mixed cable broadcasting TS, via a cable to a subscriber;<sup>46</sup>

wherein each of said first and second PSIP converters<sup>47</sup> comprises a protocol data converter<sup>48</sup> which, in turn, comprises:

a table data manager<sup>49</sup> for receiving the extracted terrestrial broadcasting PSIP/PSI table and satellite television broadcasting SI/PSI table, and extracting therefrom data for generating the digital cable broadcasting PSIP/PSI tables;<sup>50</sup>

a common protocol data manager<sup>51</sup> for using the data extracted by the table data manager, data inputted by a system manager through an user interface, and data stored in a database to configure data needed for generating the digital cable broadcasting PSIP/PSI tables;<sup>52</sup>

a scheduler<sup>53</sup> for outputting control signals corresponding to each table generation period of the digital cable broadcasting PSIP/PSI tables;<sup>54</sup> and

a PSIP/PSI table generator<sup>55</sup> for generating the digital cable broadcasting PSIP/PSI tables by using the data inputted by the common protocol data manager according to the control signals outputted by the scheduler.<sup>56</sup>

---

<sup>45</sup> FIG. 1, at 500.

<sup>46</sup> Page 8, lines 6-7.

<sup>47</sup> FIG. 2.

<sup>48</sup> FIG. 2, at 203, and FIG. 4.

<sup>49</sup> FIG. 4, at 2032.

<sup>50</sup> Page 14, lines 9-13.

<sup>51</sup> FIG. 4, at 2033.

<sup>52</sup> Page 14, lines 14-18.

<sup>53</sup> FIG. 4, at 2036.

<sup>54</sup> Page 14, lines 20-21.

<sup>55</sup> FIG. 4, at 2037.

<sup>56</sup> FIG. 2, at 204, FIG. 4, at 2038, and page 14, line 19 through page 15, line 3.

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

### **A. First Ground of Rejection<sup>57</sup>**

The rejection of claims 3-5, and 9-13 under *35 U.S.C. 103(a)* as being unpatentable over *McGarrahan*<sup>58</sup> in view of *Kuh*<sup>59</sup> and *LaJoie*.<sup>60</sup>

### **B. Second Ground of Rejection**

The rejection of claim 2 under *35 U.S.C. 103(a)* as being unpatentable over *McGarrahan* in view of *Kuh* and *LaJoie* as applied with respect to claim 3, and further in view of *Rebec*.<sup>61</sup>

---

<sup>57</sup> The *35 U.S.C. 101* and *35 U.S.C. 103(a)* rejections of claims 6-8 are not to be reviewed on appeal, because claims 6-8 have been withdrawn from appeal.

<sup>58</sup> U.S. Patent Application Publication No. 2003/0026424.

<sup>59</sup> U.S. Patent No. 6,785,903.

<sup>60</sup> U.S. Patent No. 5,850,218.

<sup>61</sup> U.S. Patent No. 5,740,214.

## **VII. ARGUMENT**

### **A. First Ground of Rejection**

*35 U.S.C. 103(a) rejection of claims 3-5, 9-13 over McGarrah in view of Kuh and LaJoie*

Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. at \_\_\_, 82 USPQ2d at 1396.

Appellant respectfully traverses the *35 U.S.C. 103(a)* rejections of all claims on appeal, because the Examiner has failed to provide a clear articulation of the reason(s) why the claimed invention would have been obvious.

#### **Independent Claim 3**

As to independent claim 3, the Examiner alleged that *McGarrah* discloses all features of the claimed invention except:<sup>62</sup>

- a. PSIP/PSI
- b. a system controller
- c. converting the received satellite DVB video into a different protocol.

The Examiner then relied on *Kuh* for features a and b, and *LaJoie* for feature c.

Appellant respectfully disagrees, because *McGarrah* fails to teach or suggest more than just the three listed claim features.

1. *McGarrah* does not teach or suggest “a protocol data extractor for demultiplexing the terrestrial broadcasting TS or the satellite broadcasting TS, extracting audio/video (A/V) data and PSIP/PSI (program specific information) data from the terrestrial

---

<sup>62</sup> Final Office Action, at page 4, the third paragraph.

broadcasting TS, and extracting A/V data and SI (system information)/PSI data from the satellite broadcasting TS.”

The Examiner alleged that *McGarrahan* discloses the claim feature at paragraph 0032.<sup>63</sup> Appellant respectfully disagrees, because the particularly cited portion of *McGarrahan* clearly fails to teach or suggest any extraction, either of video or metadata. All that was taught in the cited portion is the desirability of delivery high-quality video over multiple types of communications. The reference, as applied in the Office Action, clearly fails to support the Examiner’s allegation.

The Examiner also invited Appellant to review other relevant teachings of *McGarrahan*. Appellant has carefully reviewed the reference, and failed to note any teaching or suggestion of the claim feature. In general, *McGarrahan* discloses that IP-format video from content servers 102/104/320/302 is multiplexed (at 310 in FIG. 3) with satellite DVB video received from receiver 316, and then the multiplexed stream is re-broadcasted via transmitter 118.<sup>64</sup> Since the reference’s overall teaching is about multiplexing video from multiple sources, it is neither indicative nor suggestive of demultiplexing or extraction data or video, such as protocol data.

Appellant acknowledges that there is a stream converter 314 between receiver 316 and multiplexer 310 in FIG. 3 of *McGarrahan*. There is, however, absolutely no disclosure in *McGarrahan* as to what the stream converter 314 does to the received satellite DVB video. Therefore, it is unreasonable to conclude that the *McGarrahan* stream conversion necessarily includes signal demultiplexing or data protocol extraction.

For any of the reasons detailed above, Appellant respectfully submits that *McGarrahan*, as applied in the Office Action, fails to teach or suggest the claimed limitation at issue.

2. *McGarrahan* does not teach or suggest “a protocol data converter for converting the PSIP/PSI data or the SI/PSI data extracted by the protocol data extractor into PSIP/PSI data of a corresponding digital cable television broadcasting standard.”

---

<sup>63</sup> Final Office Action, at page 3, the second from bottom paragraph.

<sup>64</sup> *McClanahan* at paragraphs 0029-0031.

The Examiner alleged that *McGarrahan* discloses the claim feature at paragraph 0062.<sup>65</sup> Appellant respectfully disagrees, because the particularly cited portion of *McGarrahan* clearly fails to teach or suggest any protocol data conversion. All that was taught in the cited portion is a list of interfaces or features of a set-top box. The reference, as applied in the Office Action, clearly fails to support the Examiner's allegation.

The Examiner also invited Appellant to review other relevant teachings of *McGarrahan*. Appellant has carefully reviewed the reference, and failed to note any teaching or suggestion of the claim feature. As discussed above in section 1, all that was taught in *McGarrahan* is video multiplexing, with some stream conversion. The first part of the *McGarrahan* overall teaching, i.e., video multiplexing, is apparently irrelevant to the claim feature at issue, i.e., protocol data conversion. The second part of the *McGarrahan* overall teaching, i.e., stream conversion, while appearing more relevant than the first part, still fails to teach or suggest to a person of ordinary skill in the art that protocol data conversion is necessarily included in the disclosed stream conversion.

For any of the reasons detailed above, Appellant respectfully submits that *McGarrahan*, as applied in the Office Action, fails to teach or suggest the claimed limitation at issue.

3. *McGarrahan* does not teach or suggest “a protocol data inserter for inserting the digital cable television broadcasting standard PSIP/PSI data generated by the protocol data converter into the A/V data extracted by the protocol data extractor through TS multiplexing, and generating a digital cable broadcasting TS.”

The Examiner alleged that *McGarrahan* discloses the claim feature at paragraph 0028.<sup>66</sup> Appellant respectfully disagrees, because the particularly cited portion of *McGarrahan* clearly fails to teach or suggest any insertion of converted protocol data into previously extracted A/V data as presently claimed. All that was taught in the cited portion is a list of elements in FIG. 3 of *McGarrahan*, none of which are taught or suggested by the reference to be capable of

---

<sup>65</sup> Final Office Action, at page 3, the last paragraph.

<sup>66</sup> Final Office Action, at page 4, the first paragraph.

performing such an insertion. The reference, as applied in the Office Action, clearly fails to support the Examiner's allegation.

The Examiner also invited Appellant to review other relevant teachings of *McGarrahan*. Appellant has carefully reviewed the reference, and failed to note any teaching or suggestion of the claim feature. As discussed above in section 1, all that was taught in *McGarrahan* is video multiplexing, with some stream conversion. The reference as a whole fails to teach or suggest the claim features in which protocol data is extracted, then converted then inserted back into the A/V data.

For any of the reasons detailed above, Appellant respectfully submits that *McGarrahan*, as applied in the Office Action, fails to teach or suggest the claimed limitation at issue.

4. It is noted that *Kuh* is not relied on by the Examiner for any of the above discussed claim features. Rather, *Kuh* is relied on for the features a, b, and the components of the claimed protocol data converter.<sup>67</sup> Therefore, the references if properly combinable in the manner suggested by the Examiner, would still fail to teach or disclose the claimed features discussed at sections 1 and 3.

5. The *McGarrahan* and *Kuh* references, if properly combinable in the manner suggested by the Examiner, would also fail to teach or disclose all components of the protocol data converter, i.e.,

“a table data manager for receiving the terrestrial broadcasting PSIP/PSI data or the satellite broadcasting SI/PSI data from the protocol data extractor, splitting them according to tables corresponding to the PSIP or the SI and the PSI, and extracting data for generating digital cable broadcasting PSIP/PSI tables;  
a common protocol data manager for using the data extracted by the table data manager, a data input by a system manager through an user interface, and data stored in a database to configure data needed for generating the digital cable broadcasting PSIP/PSI tables;  
a scheduler for outputting control signals corresponding to each table generation period of the digital cable broadcasting PSIP/PSI; and  
a PSIP/PSI table generator for generating the digital cable broadcasting PSIP/PSI tables by using the data input by the common protocol data manager according to the control signals outputted by the scheduler, and outputting the same to the protocol data inserter.”

---

<sup>67</sup> Final Office Action, at pages 4-5.

For example, the Examiner alleged that *Kuh* discloses the claimed scheduler at column 2 line 66 through column 3 line 25.<sup>68</sup> Appellant respectfully disagrees, because the particularly cited portion of *Kuh* is merely a description of what is shown in FIGs. 4-6 of the reference. There is no teaching or suggestion of any scheduler that outputs control signals corresponding to each table generation period as presently claimed. Likewise, the *Kuh* reference also fails to teach or suggest the other components of the claimed protocol data converter, despite the Examiner's allegations to the contrary.

The Examiner also invited Appellant to review other relevant teachings of *Kuh*. Appellant has carefully reviewed the reference, and failed to note any teaching or suggestion of the claim features. The most relevant disclosure of *Kuh* appears to be FIG. 3 where it is disclosed that PSIP data is extracted from the TS (transport stream), then updated and inserted back into the extracted AV data. The term "update" used by *Kuh*, however, suggests to a person of ordinary skill in the art that no data protocol conversion is taken place. Rather, the PSIP data remains in the same format, i.e., "updated." This is especially true considering the "updating" technique disclosed by *Kuh* at column 5 lines 24-28, i.e.,

The PSIP update block 18 replaces the major/minor channel number and transmit carrier frequency contained in the VCT (a sub-table of the PSIP table) while retaining the other PSIP data.

A person of ordinary skill in the art would understand that replacing channel number and frequency while retaining the other PSIP data does not require protocol data conversion at all.

Since *Kuh* does not teach or suggest any protocol data conversion, it also fails to teach or suggest the components for doing so. In addition, although *Kuh* discloses the function of the PSIP updater 18, the reference does not teach or suggest any structures for performing the function. Therefore, it is unreasonable to conclude that *Kuh* discloses the components of the claimed protocol data converter.

---

<sup>68</sup> Final Office Action, at page 5, the first paragraph.



For any of the reasons detailed above, Appellant respectfully submits that *McGarrahan* in view of *Kuh*, as applied in the Office Action, fails to teach or suggest the claimed limitations at issue.

6. Finally, the Examiner's proposed combination of *McGarrahan* and *Kuh* with *LaJoie* would not teach or disclose the claimed "converting the PSIP/PSI data or the SI/PSI data extracted by the protocol data extractor into PSIP/PSI data of a corresponding digital cable television broadcasting standard." In other words, the references as combined in the Final Office Action would not teach or suggest conversion of extracted protocol data from one form to another as presently claimed.

The reason is that *LaJoie* does not teach or suggest conversion of protocol data; the reference is rather related to the whole stream conversion. In deed, *LaJoie* broadly mentions at the paragraph bridging columns 2-3 that the received signals are converted to a format suitable for cable transmission. The reference further details how such conversion is made at column 11 lines 25-45, i.e., the received signals are demodulated, decrypted, manipulated to remove unwanted channels, encrypted, and QAM-modulated. Thus, the received signals in *LaJoie* are processed as a whole, and as such, *LaJoie* discloses, at best, only a stream converter like element 314 of *McGarrahan*. No extracted protocol data conversion is disclosed or suggested in the reference of *LaJoie*, and hence, the Examiner's combination, if at all proper, would still lack the claim feature at issue.

It would be now clear to a person of ordinary skill in the art that *LaJoie* discloses no more than a stream converter which processes the incoming stream as a whole, and would be best, if at all proper, applicable to the stream converter 314 of *McGarrahan*. The person of ordinary skill in the art would realize that the stream converting technique of *LaJoie* is inapplicable to the protocol data updater 18 of *Kuh*. Accordingly, in view of the teachings of the references, the person of ordinary skill in the art would have at best

- (i) included the protocol data updater 18 of *Kuh* in the system of *McGarrahan* wherever protocol data update (not conversion) is required, and
- (ii) separately applied the stream converting technique of *LaJoie* in the stream converter 314 of *McGarrahan* when stream conversion is required.

Such a combined system would, of course, fail to include any protocol data conversion as presently claimed.

For any of the reasons detailed above in sections 1-6, Appellant respectfully submits that *McGarrahan* in view of *Kuh* and *LaJoie*, fails to teach or suggest the invention of claim 3. Accordingly, independent claim 3, as well as the respective dependent claims, are clearly patentable over the applied art of record.

#### Claim 4

7. The references, especially, *Kuh*, clearly fail to teach or suggest the claimed “PSIP/PSI table generator ... arranged for transmitting the digital cable broadcasting PSIP data to a PSIP server through a predetermined network so that the digital cable broadcasting PSIP data are included in the digital cable SI data and transmitted to a subscriber, the PSIP server transmitting the digital cable SI data to the subscriber through an out-of-band channel.”

As discussed above, the cited portion of *Kuh*, i.e., column 2 line 65 through column 3 line 25,<sup>69</sup> is merely a description of what is shown in FIGs. 4-6 of the reference and fails to teach or suggest any PSIP server and/or how such server transmits cable SI data to the subscriber.

Claim 4 is thus separately patentable over the applied art of record.

#### Independent claim 9

8. Independent claim 9 is patentable over the applied art of record for at least the reasons detailed in sections 2, 4, 5 and 6 with respect to claim 3.

---

<sup>69</sup> Final Office Action, at page 6, the first full paragraph.

9. As to claim 9, the applied references, especially *Kuh*, fails to teach or suggest the claimed “mixer for mixing the cable broadcasting TS up-converted by the up-converters, and transmitting the mixed cable broadcasting TS, via a cable to a subscriber.”

The Examiner alleged that the claim feature is taught by *Kuh* at FIG.5, element 28 and column 5 lines 58-61.<sup>70</sup> Appellant respectfully disagrees. Element 28 is a part of re-mux 23 in FIG. 4 as discussed at column 5 lines 53-54 of *Kuh*. The *Kuh* element 28 is therefore upstream of modulator 24/13 which is, in turn, upstream of any up-converter that *Kuh* might have disclosed in column 5 lines 3-11. In other words, the *Kuh* element 28 is upstream of the up-converter(s) and therefore, cannot mix signals that have been converted by the up-converters, contrary to the claim requirement.

Claim 9, as well as claims 10-13 depending therefrom, are thus separately patentable over the applied art of record.

#### Claim 11

10. Claim 11 is separately patentable over the applied art of record for at least the reason detailed in section 7 with respect to claim 4.

#### Claims 12, 13

11. Claims 12, 13 are separately patentable over the applied art of record for at least the reasons detailed in sections 1 and 3 with respect to claim 3.

#### *Conclusion*

For the extensive reasons shown above, Appellant respectfully requests that the rejection under 35 U.S.C. 103(a), as to claims 3-5 and 9-13 be reversed.

---

<sup>70</sup> Final Office Action, at page 12, the third full paragraph.

**B. Second Ground of Rejection**

*35 U.S.C. 103(a) rejection of claim 2 over McGarrah in view of Kuh, LaJoie and Rebec*

12. Claim 2 is clearly patentable over the applied art of record at least for the reasons detailed with respect to independent claim 3.

*Conclusion*

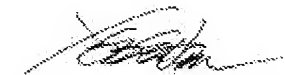
For the reason shown above, Appellant respectfully requests that the rejection under *35 U.S.C. 103(a)*, as to claim 2 be reversed.

Each of the Examiner's rejections has been traversed. Accordingly, Appellant respectfully submits that all claims on appeal are considered allowable. Accordingly, reversal of the Examiner's Final Rejection is believed appropriate and courteously solicited.

If for any reason this Appeal Brief is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned, Appellant's attorney of record.

Respectfully submitted,

LOWE HAUPTMAN HAM & BERNER, LLP



Registration No. 45,307

1700 Diagonal Road, Suite 310  
Alexandria, Virginia 22314  
(703) 684-1111  
Facsimile: 703-518-5499  
**Date: September 28, 2009**

## **VIII. CLAIMS APPENDIX**

2. The PSIP converter of claim 3, further comprising:

a TS receiver for receiving the terrestrial broadcasting TS or the satellite broadcasting TS, and transmitting the same to the protocol data extractor;

a TS transmitter for outputting the digital cable broadcasting TS generated by the protocol data inserter to the outside; and

said user interface coupled to said protocol data converter for receiving, from the system manager, the data input needed for generating the PSIP/PSI data of the digital cable television broadcasting standard.

3. A program and system information protocol (PSIP) converter for selectively receiving a digital terrestrial broadcasting transport stream (TS) or a digital satellite broadcasting TS, converting them into a corresponding digital cable broadcasting TS, and outputting the same, said PSIP converter comprising:

a protocol data extractor for demultiplexing the terrestrial broadcasting TS or the satellite broadcasting TS, extracting audio/video (A/V) data and PSIP/PSI (program specific information) data from the terrestrial broadcasting TS, and extracting A/V data and SI (system information)/PSI data from the satellite broadcasting TS;

a protocol data converter for converting the PSIP/PSI data or the SI/PSI data extracted by the protocol data extractor into PSIP/PSI data of a corresponding digital cable television broadcasting standard;

a protocol data inserter for inserting the digital cable television broadcasting standard PSIP/PSI data generated by the protocol data converter into the A/V data extracted by the protocol data extractor through TS multiplexing, and generating a digital cable broadcasting TS; and

a system controller for checking states of the protocol data extractor, the protocol data converter and the protocol data inserter, and controlling their operation;

wherein the protocol data converter comprises:

a table data manager for receiving the terrestrial broadcasting PSIP/PSI data or the satellite broadcasting SI/PSI data from the protocol data extractor, splitting them according to tables corresponding to the PSIP or the SI and the PSI, and extracting data for generating digital cable broadcasting PSIP/PSI tables;

a common protocol data manager for using the data extracted by the table data manager, a data input by a system manager through an user interface, and data stored in a database to configure data needed for generating the digital cable broadcasting PSIP/PSI tables;

a scheduler for outputting control signals corresponding to each table generation period of the digital cable broadcasting PSIP/PSI; and

a PSIP/PSI table generator for generating the digital cable broadcasting PSIP/PSI tables by using the data input by the common protocol data manager according to the control signals outputted by the scheduler, and outputting the same to the protocol data inserter.

4. The PSIP converter of claim 3, wherein the PSIP/PSI table generator is arranged for transmitting the digital cable broadcasting PSIP data to a PSIP server through a predetermined network so that the digital cable broadcasting PSIP data are included in the digital cable SI data and transmitted to a subscriber, the PSIP server transmitting the digital cable SI data to the subscriber through an out-of-band channel.

5. The PSIP converter of claim 3, further comprising:

a TS data receiver for receiving the terrestrial broadcasting PSIP/PSI data or the satellite broadcasting SI/PSI data from the protocol data extractor; and

a TS packet data generator for configuring the digital cable broadcasting PSIP/PSI table generated by the PSIP/PSI table generator into MPEG-2 TS packets, and transmitting said packets to the protocol data inserter.

9. A digital cable television broadcasting system for selectively receiving digital terrestrial broadcasting or digital satellite television broadcasting signals and linking the selectively received signals to a digital cable broadcasting network in real-time, said system comprising:

a plurality of first and second broadcasting signal demodulators for demodulating the digital terrestrial broadcasting signals and the digital satellite television broadcasting signals, respectively, and outputting the demodulated signals in terrestrial broadcasting transport streams (TS) and satellite broadcasting TS, respectively;

a plurality of first and second program and system information protocol (PSIP) converters for analyzing the terrestrial broadcasting TS and the satellite broadcasting TS outputted by the broadcasting signal demodulators, respectively, converting a terrestrial broadcasting PSIP/PSI table and a satellite television broadcasting SI/PSI table extracted from the analyzed TS into digital cable broadcasting PSIP/PSI tables, respectively, and outputting a cable broadcasting TS based on the digital cable broadcasting PSIP/PSI tables;

a plurality of broadcasting signal modulators for modulating the cable broadcasting TS outputted by the PSIP converters;

a plurality of up-converters for up-converting the cable broadcasting TS modulated by the broadcasting signal modulators into radio frequency (RF) signals; and

a mixer for mixing the cable broadcasting TS up-converted by the up-converters, and transmitting the mixed cable broadcasting TS, via a cable to a subscriber;

wherein each of said first and second PSIP converters comprises a protocol data converter which, in turn, comprises:

a table data manager for receiving the extracted terrestrial broadcasting PSIP/PSI table and satellite television broadcasting SI/PSI table, and extracting therefrom data for generating the digital cable broadcasting PSIP/PSI tables;

a common protocol data manager for using the data extracted by the table data manager, data inputted by a system manager through an user interface, and data stored in a database to configure data needed for generating the digital cable broadcasting PSIP/PSI tables;

a scheduler for outputting control signals corresponding to each table generation period of the digital cable broadcasting PSIP/PSI tables; and

a PSIP/PSI table generator for generating the digital cable broadcasting PSIP/PSI tables by using the data inputted by the common protocol data manager according to the control signals outputted by the scheduler.

10. The digital cable television broadcasting system of claim 9, further comprising:

a terrestrial broadcasting antenna for receiving the digital terrestrial broadcasting and outputting corresponding broadcasting signals to the first broadcasting signal demodulator; and

a satellite broadcasting antenna for receiving the digital satellite television broadcasting and outputting corresponding broadcasting signals to the second broadcasting signal demodulator.

11. The digital cable television broadcasting system of claim 9, further comprising:

a PSIP server for receiving digital cable broadcasting PSIP/PSI table generated by the PSIP converters, and including the received digital cable broadcasting PSIP/PSI table in digital cable SI data to be transmitted to the subscriber via an out-of-band channel;

an out-of-band channel signal modulator for modulating the digital cable SI data generated by the PSIP server, and transmitting the modulated digital cable SI data to the subscriber through the out-of-band channel; and



an out-of-band channel network controller for controlling the cable SI data transmitted to the out-of-band channel signal modulator from the PSIP server.

12. The digital cable television broadcasting system of claim 9, wherein the first PSIP converter further comprises:

a protocol data extractor for demultiplexing the terrestrial broadcasting TS and extracting audio/video (A/V) data and PSIP/PSI data from the terrestrial broadcasting TS;

said protocol data converter for using the PSIP/PSI data extracted by the protocol data extractor to generate PSIP/PSI data of a corresponding digital cable television broadcasting standard in form of the digital cable broadcasting PSIP/PSI table;

a protocol data inserter for inserting the PSIP/PSI data generated by the protocol data converter into the A/V data extracted by the protocol data extractor through TS multiplexing, and generating the digital cable broadcasting TS; and

a system controller for checking and controlling the protocol data extractor, the protocol data converter, and the protocol data inserter.

13. The digital cable television broadcasting system of claim 9, wherein the second PSIP converter further comprises:

a protocol data extractor for demultiplexing the satellite broadcasting TS and extracting A/V data and SI/PSI data from the satellite broadcasting TS;

said protocol data converter for using the SI/PSI data extracted by the protocol data extractor to generate PSIP/PSI data of a corresponding digital cable television broadcasting standard in form of the digital cable broadcasting PSIP/PSI table;

a protocol data inserter for inserting the PSIP/PSI data generated by the protocol data converter into the A/V data extracted by the protocol data extractor through TS multiplexing, and generating the digital cable broadcasting TS; and

a system controller for checking and controlling the protocol data extractor, the protocol data converter, and the protocol data inserter.

**IX. EVIDENCE APPENDIX**

None

**X. RELATED PROCEEDINGS APPENDIX**

None